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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/778,922	02/08/2001	Jyrki Hiltunen	365-494P	4521

2292 7590 07/08/2003

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EXAMINER
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GRIFFIN, WALTER DEAN

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 07/08/2003

14

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/778,922

Applicant(s)

HILTUNEN, JYRKI

Examiner

Walter D. Griffin

Art Unit

1764

**-- Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --****Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 April 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5,7 and 9-22 is/are rejected.
- 7) ☒ Claim(s) 6 and 8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 17 March 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                   | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                          | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>13</u> . | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Response to Amendment***

The objections to the specification and claims as described in paper no. 8 have been withdrawn in view of the amendment filed on April 30, 2003. Also, the claim rejections under 35 U.S.C. § 112, second paragraph, as described in paper no. 8 have been withdrawn in view of the amendment except for the rejection described below.

### ***Claim Objections***

Claims 6 and 8 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to the other claims in the alternative only. See MPEP § 608.01(n). Accordingly, the claims 6 and 8 have not been further treated on the merits.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 15 is indefinite because the expression "said gas inlet channel (15)" lacks proper antecedent basis in claim 13. Also, the expression "the cyclone separation chamber" lacks proper antecedent basis in claims 13 and 14.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 11-16, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Davenport et al. (2,553,175).

The Davenport reference discloses an apparatus for separating solid particles from a gaseous stream. The apparatus comprises at least two multiple inlet cyclones (35) connected in a parallel configuration. These multiple inlet cyclones have a common gas inlet channel (42) formed between two concentric cylindrical surfaces. This gas inlet channel has a circular cross section. The cyclones operate in the interior space of the gas inlet channel. Center conduits of the cyclones pass through a common gas inlet channel. The dip legs of the cyclones discharge into a common conduit. The cyclones contain openings formed by diametrically opposed substantially parallel tangential extensions. The process of using the apparatus comprises passing a gaseous stream containing solid particles into a separator apparatus that contains at least two multiple inlet cyclones (35) connected in a parallel configuration whereby the particles are separated from the gas by centrifugal force. The gaseous stream is a flue gas from a primary cyclone separator. See the figures and col. 2, line 32 through col. 5, line 25.

Art Unit: 1764

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 4, 5, 7, 9, 10, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davenport et al. (2,553,175).

The Davenport reference discloses a process for separating solid particles from a gaseous stream. The process comprises passing a gaseous stream containing solid particles into a separator apparatus that contains at least two multiple inlet cyclones (35) connected in a parallel configuration whereby the particles are separated from the gas by centrifugal force. The gaseous stream is a flue gas from a primary cyclone separator. The Davenport reference also discloses an apparatus for separating solid particles from a gaseous stream. The apparatus comprises at least two multiple inlet cyclones (35) connected in a parallel configuration. These multiple inlet cyclones have a common gas inlet channel (42) formed between two concentric cylindrical surfaces. This gas inlet channel has a circular cross section. The cyclones operate in the interior

Art Unit: 1764

space of the gas inlet channel. Center conduits of the cyclones pass through a common gas inlet channel. The dip legs of the cyclones discharge into a common conduit. The cyclones contain openings formed by diametrically opposed substantially parallel tangential extensions. See the figures and col. 2, line 32 through col. 5, line 25.

The Davenport reference does not disclose that the gaseous stream to be treated is obtained from a secondary separator apparatus. It also does not disclose the claimed source of the gaseous stream as in claims 7 and 9, does not disclose the dust concentration as in claim 10, and does not disclose that the separator is connected to a fluidized catalytic process apparatus.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Davenport by using a gaseous stream from a secondary separator because any gas that contains solids would be effectively treated regardless of the number of prior separations of the solids from the gas.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process and apparatus of Davenport by utilizing the separator to separate solids such as cracking catalysts or other particles from gases resulting from fluidized bed processes and apparatus because any gas that contains particles would be effectively treated in the separator regardless of its source.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Davenport to obtain the claimed dust concentrations because one would adjust conditions in order to maximize the desired effect of dust removal.

Art Unit: 1764

Claims 17, 18, 21, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davenport et al. (2,553,175) in view of DE 914701.

As discussed above, the Davenport reference does not disclose the guide vanes of claims 17 and 18.

The DE 914701 reference discloses guide vanes in a cyclonic separator. See entire document.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process and apparatus of Davenport by including the guide vanes of the DE 914701 reference because efficient separation of solids from gas will be achieved.

### ***Response to Arguments***

The argument that the present device is different from the device of Davenport in that the present invention operates at overpressure whereas the Davenport device operated at a vacuum is not persuasive because the feature upon which applicant relies (i.e., operating pressure) is not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Also, the argument that the bent openings of Davenport cannot be vanes is not persuasive. The claimed “vanes” limitation is supplied by the DE 914701 reference.

The argument that the flow in the Davenport process and apparatus is more axial than tangential and therefore the claimed process and apparatus are differentiated from the process

Art Unit: 1764

and apparatus of Davenport is not persuasive because Davenport discloses in column 4, lines 27-35, that the air moves in a circular path. This description appears to be the same as tangential flow.

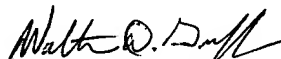
### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art not relied upon discloses apparatus for separating solid particles from gases.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter D. Griffin whose telephone number is 703-305-3774. The examiner can normally be reached on Monday-Friday 6:30 to 4:00 with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 703-308-6824. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.

  
Walter D. Griffin  
Primary Examiner  
Art Unit 1764

WG  
June 30, 2003